

Title: COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER

Express Mail No. EV170136277US

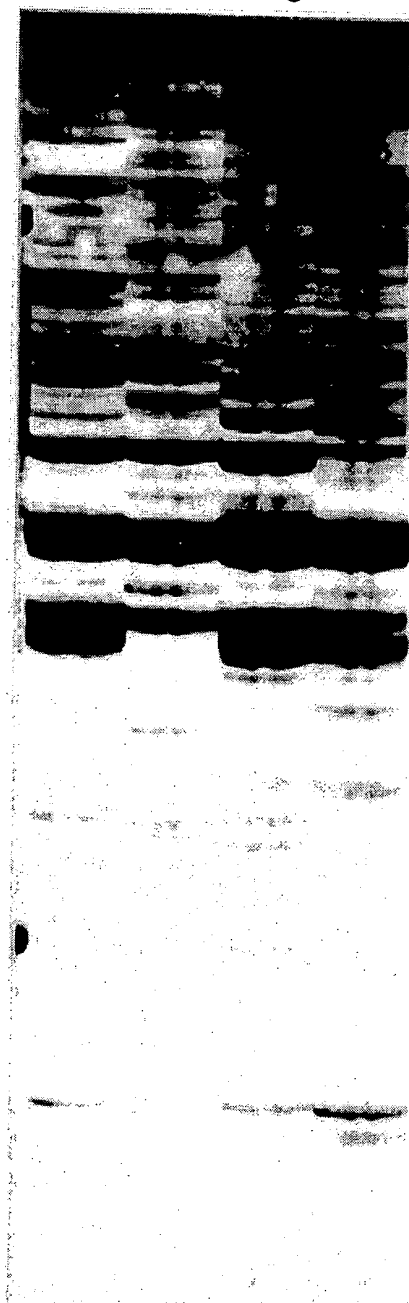
Inventor(s): Tony N. Frudakis et al. Serial No. 09/534,825 Docket No. 210121.419C7

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CDNA PREPARED FROM
NORMAL BREAST TISSUE
FROM THE SAME PATIENT

CDNA PREPARED
FROM BREAST TUMOR



← B18Ag1

Fig. 1

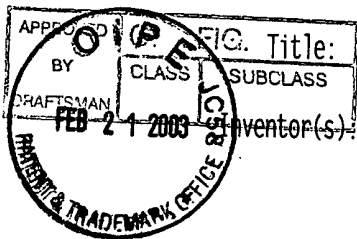


FIG. Title: COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER

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BREAST TUMOR mRNA

NORMAL BREAST TISSUE mRNA

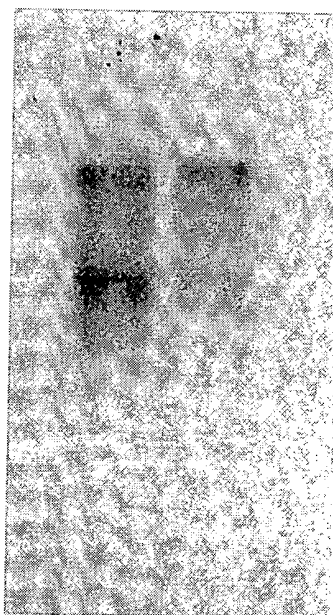


Fig. 2



FIG. Title:

COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER

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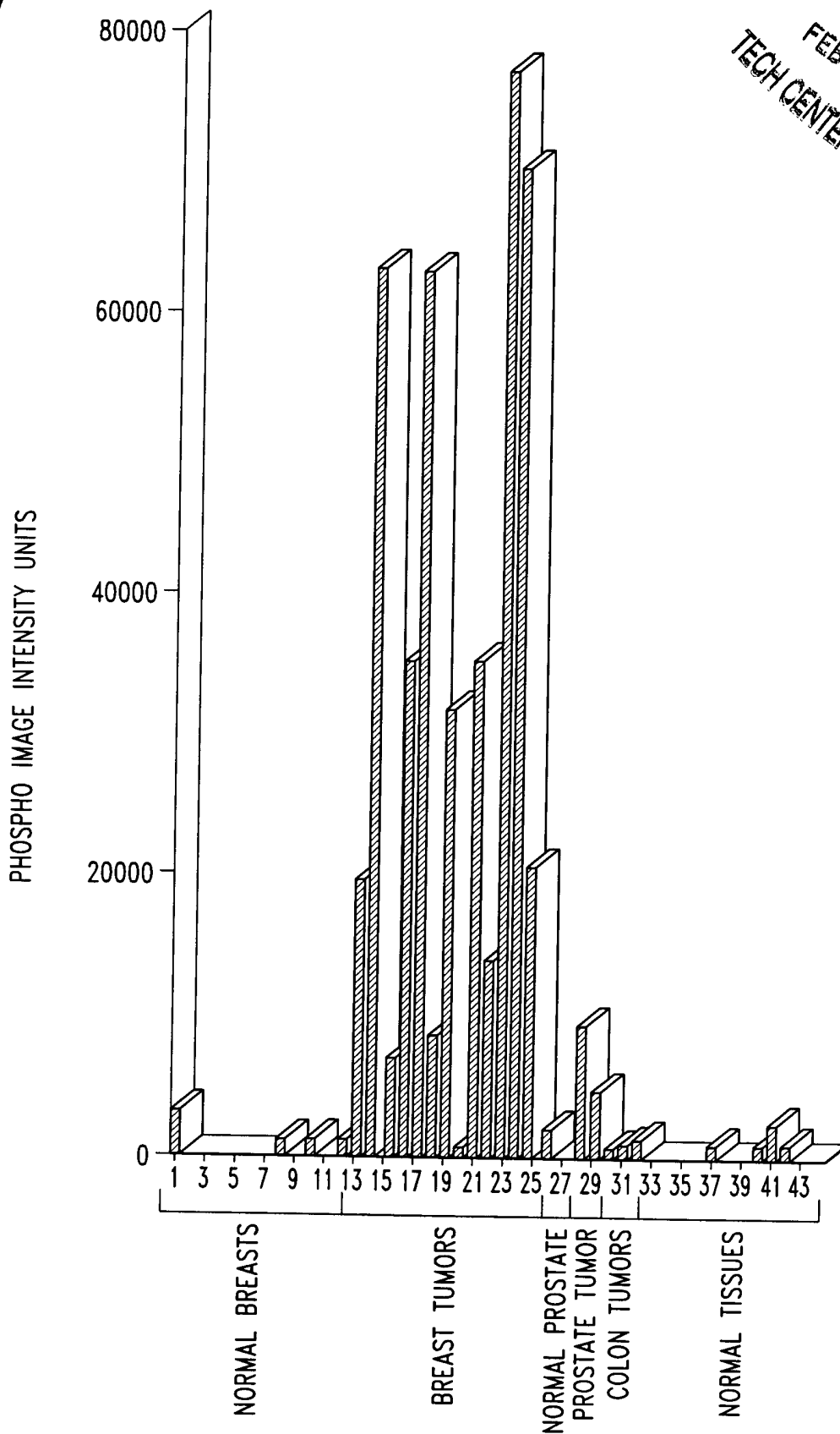


Fig. 3

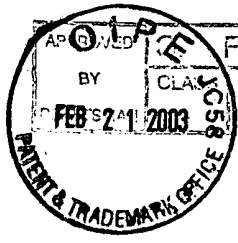


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GENOMIC CLONE MAP

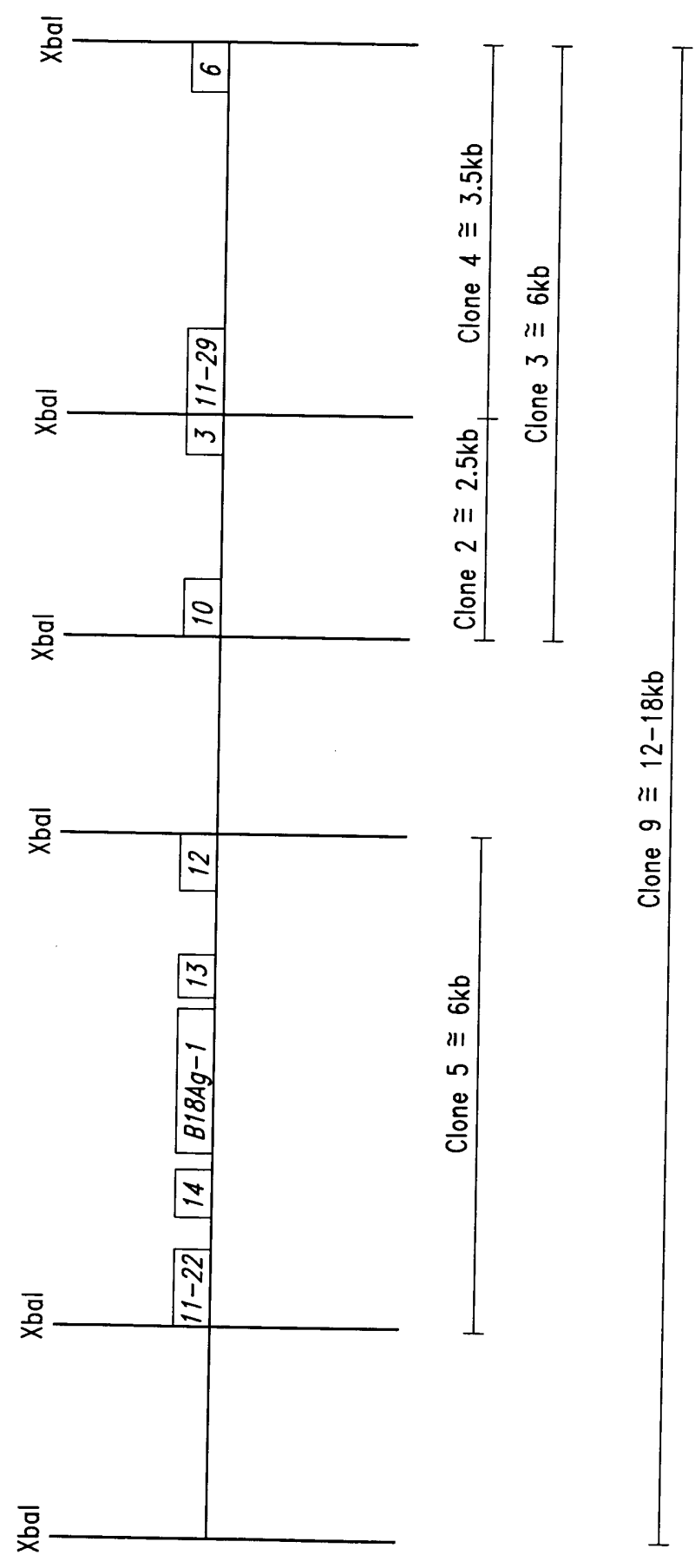
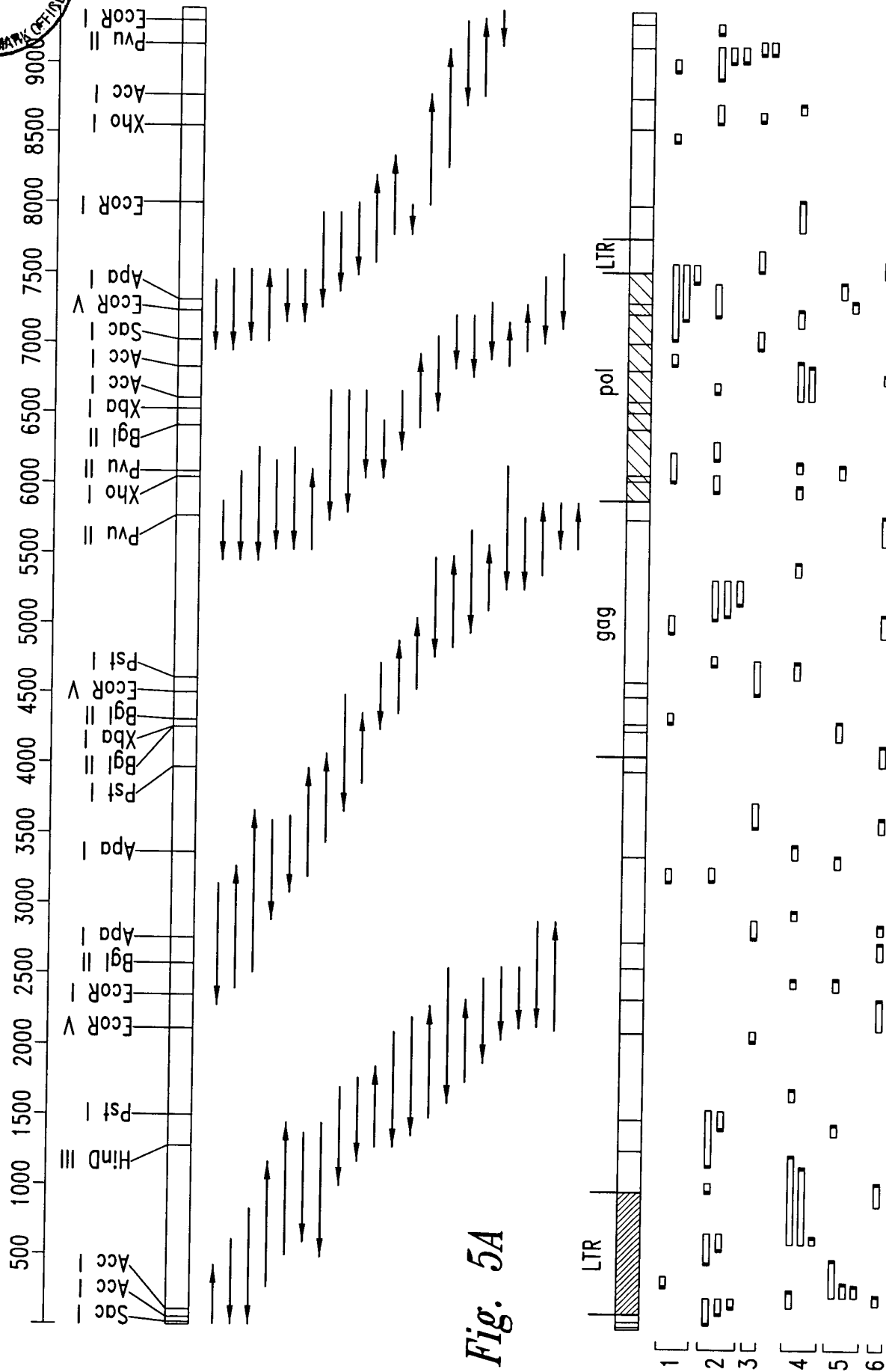


Fig. 4



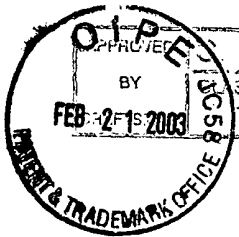


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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B18Ag1

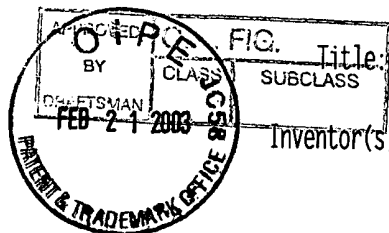
TTA GAG ACC CAA TTG GGA CCT AAT TGG GAC CCA AAT TTC TCA AGT GGA 48
Leu Glu Thr Gln Leu Gly Pro Asn Trp Asp Pro Asn Phe Ser Ser Gly
1 5 10 15
GGG AGA ACT TTT GAC GAT TTC CAC CGG TAT CTC CTC GTG GGT ATT CAG 96
Gly Arg Thr Phe Asp Asp Phe His Arg Tyr Leu Leu Val Gly Ile Gln
20 25 30
GGA GCT GCC CAG AAA CCT ATA AAC TTG TCT AAG GCG ATT GAA GTC GTC 144
Gly Ala Ala Gln Lys Pro Ile Asn Leu Ser Lys Ala Ile Glu Val Val
35 40 45
CAG GGG CAT GAT GAG TCA CCA GGA GTG TTT TTA GAG CAC CTC CAG GAG 192
Gln Gly His Asp Glu Ser Pro Gly Val Phe Leu Glu His Leu Gln Glu
50 55 60
GCT TAT CGG ATT TAC ACC CCT TTT GAC CTG GCA GCC CCC GAA AAT AGC 240
Ala Tyr Arg Ile Tyr Thr Pro Phe Asp Leu Ala Ala Pro Glu Asn Ser
65 70 75 80
CAT GCT CTT AAT TTG GCA TTT GTG GCT CAG GCA GCC CCA GAT AGT AAA 288
His Ala Leu Asn Leu Ala Phe Val Ala Gln Ala Ala Pro Asp Ser Lys
85 90 95
AGG AAA CTC CAA AAA CTA GAG GGA TTT TGC TGG AAT GAA TAC CAG TCA 336
Arg Lys Leu Gln Lys Leu Glu Gly Phe Cys Trp Asn Glu Tyr Gln Ser
100 105 110
GCT TTT AGA GAT AGC CTA AAA GGT TTT 363
Ala Phe Arg Asp Ser Leu Lys Gly Phe
115 120

Fig. 6

NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B17Ag1

GC TGGGCACAGT GGCTCATACC TGTAATCCTG ACCGTTTCAG AGGCTCAGGT 60
CG CTTGAGCCCA AGATTTCAAG ACTAGTCTGG GTAACATAGT GAGACCCTAT 120
AA AAATAAAAAA ATGAGCCTGG TGTAGTGGCA CACACCAGCT GAGGAGGGAG 180
CT AGGAGA 196

Fig. 7



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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B17Ag2

GC TTGGGGGCTC TGACTAGAAA TTCAAGGAAC CTGGGATTCA AGTCCAAC TG 60
AC TTACACTGTG GNCTCCAATA AACTGCTTCT TTCCTATTCC CTCTCTATTA 120
AA GGAAAACGAT GTCTGTGTAT AGCCAAGTCA GNTATCCTAA AAGGAGATAC 180
AT TAAATATCAG AATGTAAAAC CTGGGAACCA GGTTCCTCAG CTGGGATTAA 240
CA AGAAGACTGA ACAGTACTAC TGTGAAAAGC CCGAAGNGGC AATATGTTCA 300
TT GAAGGATGGC TGGGAGAATG AATGCTCTGT CCCCCAGTCC CAAGCTCACT 360
CT CCTTTATAGC CTAGGAGA 388

Fig. 8

NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B13Ag2a

GC CTATAATCAT GTTCTCATT ATTTTCACAT TTTATTAACC AATTTCTGTT 60
AA AATATGAGGG AAATATATGA AACAGGGAGG CAATGTTTCA ATAATTGATC 120
TG ATTTCTACAT CAGATGCTCT TTCCTTTCTT GTTTATTTC TTTTATTTC 180
GG TCGAATGTAA TAGCTTTGTT TCAAGAGAGA GTTTTGGCAG TTTCTGTAGC 240
CT GCTCATGTCT CCAGGCATCT ATTTGCACTT TAGGAGGTGT CGTGGGAGAC 300
CT ATTTTTTCCA TATTTGGGCA ACTACTA 337

Fig. 9

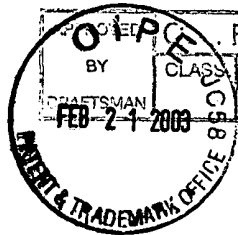


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TECH CENTER 1600/2900NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B13Ag1b

GC CATACAGTGC CTTTCCATTT ATTTAACCCC CACCTGAACG GCATAAACTG 60

GC TGGTGTTTTT TACTGTAAAC AATAAGGAGA CTTTGCTCTT CATTTAAACC 120

AT TTCATATTTT ACGCTCGAGG GTTTTTACCG GTTCCTTTTT ACACTCCTTA 180

TT TAAGTCGTTT GGAACAAGAT ATTTTTTCTT TCCTGGCAGC TTTTAACATT 240

TT TGTGTCTGGG GGAAGTCTGG TCACTGTTT TCACAGTTGC AAATCAAGGC 300

CC AAGAAAAAAA AATTTTTTTG TTTTATTTGA AACTGGACCG GATAAACGGT 360

CG GCTGCTGTAT ATAGTTTTAA ATGGTTTATT GCACCTCCTT AAGTTGCACT 420

GG GGGGNTTTTG NATAGAAAGT NTTTANTCAC ANAGTCACAG GGACTTTTNT 480

NA CTGAGCTAAA AAGGGCTGNT TTTCGGGTGG GGGCAGATGA AGGCTCACAG 540

TC TCTTAGAGGG GGGAACNCT A 571

Fig. 10



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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B13Ag1a

TA ATAACCTAAA TATATTTTGA TCACCCACTG GGGTGATAAG ACAATAGATA 60
TT TCCAAAAAGC ATAAAAACCA AGTATCATAC CAAACCAAAT TCATACTGCT 120
CC GCACTGAAAC TTCACCTTCT AACTGTCTAC CTAACCAAAT TCTACCTTC 180
GG TGGTGCTCA CTACTCTTTT TTTTTTTTTT TTTNTTTTGG AGATGGAGTC 240
CA GCCCAGGGGT GGAGTACAAT GGCACAACCT CAGCTCACTG NAACCTCCGC 300
TT CATGAGATTC TCCTGNTTCA GCCTTCCCAG TAGCTGGGAC TACAGGTGTG 360
TG CCTGGNTAAT CTTTTTTNGT TTTNGGGTAG AGATGGGGGT TTTACATGTT 420
TG GTNTCGAACT CCTGACCTCA AGTGATCCAC CCACCTCAGG CTCCTCAAAGT 480
TA CAGACATGAG CCACTGNGCC CAGNCCTGGT GCATGCTCAC TTCTCTAGGC 540

Fig. 11



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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B11Ag1

TG CACATGCAGA ATATTCTATC GGTACTTCAG CTATTACTCA TTTTGATGGC 60
AG CCTATCCTCA AGATGAGTAT TTAGAAAGAA TTGATTTAGC GATAGACCAA 120
GC ACTCTGACTA CACGAAATTG TTCAGATGTG ATGGATTAT GACAGTTGAT 180
GA GATTATTAAG TGATTATTTT AAAGGGAATC CATTAATTCC AGAATATCTT 240
TC AAGATGATAT AGAAATAGAA CAGAAAGAGA CTACAAATGA AGATGTATCA 300
TA TTGAAGAGCC TATAGTAGAA AATGAATTAG CTGCATTTAT TAGCCTTACA 360
TT TTCCTGATGA ATCTTATATT CAGCCATCGA CATAGCATTG CCTGATGGGC 420
GA ATAATAGAAA CTGGGTGCGG GGCTATTGAT GAATTCATCC NCAGTAAATT 480
AC AAAATATAAC TCGATTGCAT TTGGATGATG GAATACTAAA TCTGGCAAAA 540
GG AGCTACTAGT AACCTCTCTT TTTGAGATGC AAAATTTTCT TTTAGGGTTT 600
CT ACTTTACGGA TATTGGAGCA TAACGGGA 638

Fig. 12

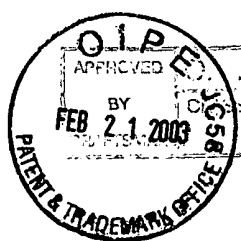


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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B3CA3c

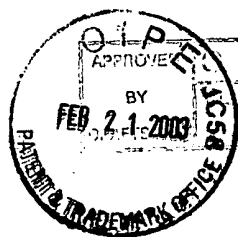
ACTGATGGAT GTCGCCGGAG GCGAGGGGCC TTATCTGATG CTCGGCTGCC TGTTCTGAT 60
GTGCGCGGCG ATTGGGCTGT TTATCTCAA CACCGCCACG GCGGTGCTGA TGGCGCCTAT 120
TGCCTTAGCG GCGGCGAAGT CAATGGGCGT CTCACCCTAT CCTTTTGCCA TGGTGGTGGC 180
GATGGCGGCT TCGGCGGCGT TTATGACCCC GGTCTCCTCG CCGGTTAACA CCCTGGTGTCT 240
TGGCCCTGGC AAGTACTCAT TTAGCGATT TGTCAAATA GCGCTG 286

Fig. 13

NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B9CG1

AG CAGCCCCCTTCTCAATTT CATCTGTCAC TACCCTGGTG TAGTATCTCA 60
CA TTTTATAGC CTCCTCCCTG GTCTGTCTTT TGATTTTCCT GCCTGTAATC 120
AC ATAAGTGCAA GTAAACATTT CTAAAGTGTG GTTATGCTCA TGCACTCCT 180
AA ATAGTTTCCA TTACCGTCTT AATAAAATTC GGATTTGTTC TTTNCTATTN 240
CA CCTATGACCG AA 262

Fig. 14



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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B9CG3

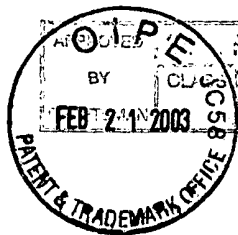
AG CAAAGCCAGT GGT TTGAGCT CTCTACTGTG TAAACTCCTA AACCAAGGCC 60
TA AATGGTGGCA GGATTTTAT TATAAACATG TACCCATGCA AATTTCCTAT 120
GA TATATTCTTC TACATTTAAA CAATAAAAAT AATCTATTTT TAAAAGCCTA 180
AG TTAGGTAAGA GTGTTTAATG AGAGGGTATA AGGTATAAAT CACCAGTCAA 240
TG CCTATGACCG A 261

Fig. 15

NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B2CA2

CGACGTCGGT AAAATCGGAC ATGAAGCCAC CGCTGGTCTT TTCGTCCGAG CGATAGGCGC 60
CGGCCAGCCA GCGGAACGGT TGCCCGGATG GCGAAGCGAG CCGGAGTTCT TCGGACTGAG 120
TATGAATCTT GTTGTGAAAA TACTCGCCGC CTTCGTTCTGA CGACGTCGCG TCGAAATCTT 180
AATCATGGTT GAGCCGGATG CTGCCCCCGA AGCCCT 276

Fig. 16



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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B3CA1

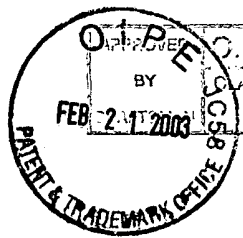
CCCAGGTCAA CCAGGCTGCA ACACGCAGGT CCTTGGATTG GGCACGAAGC AGCGCTTCGC 60
TGTTTTCCAG GATTTTCAAC CAGTCGGTCT GGCCGTTCTC ATGGAGCGAG AGCGCCTTGC 120
CCAGCTCATT TTCCAGCGCC TCGTATTCGC TGGAAAAACG CACATCCTCA CCCGCAAAGA 180
CATCCTTTGA AATCGGCTGT TCCGCGAGTT CCAGATANTG CGAGGAGAGC TTGCTCGAAT 240
AGGTCATCCT AACCCTTCAA TGCACACCAT GTGCGCCAAT GAATATCTTA ACAATTCAAC 300
TAGTTGGCAT AANAACCGAA CGAAAATCCC AATAGTCTGA AGAGCTCTTT TG 352

Fig. 17

NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B3CA2

CTGCATGTCC ACGGCCTGGA TTTACGGGTG GTCGGCGTTC ACCCCTGGCA GCTGGCGGCTC 60
TTCCCGACCA GGCCAGCAG GATGTGTGGG GCAAGGATAA CGGCGTGCGC ATCGCCTCGA 120
CCTATATGCC TACTGGCAAG GCCGAGCCCG TGAAGGCGG ATTCAGGTTC ANCGGTCGCT 180
GGAGCTTTTC CACCGGCTCC ATGCATTGTG ACTGGCTGTT TCTAGGCGGT CTGTTGCCCA 240
AGCGTGATGG TACGTCTGGC CTGGAGCATG TGACTTTCTG 280

Fig. 18



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NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B3CA3

AG GGAGCAAGGA GAAGGCATGG AGAGGCTCAN GCTGGTCCTG GCCTACGACT 60
CT GTCGCCGGGG ATGGTGGAGA ACTGAAGCGG GACCTCCTCG AGGTCTCTCG 120
TC NCCGTCCAGG AGGAGGGTCT TTCCGTGGTC TNGGAGGAGC GGGGGGAGAA 180
TC ATGGTCNACA TCCC 204

Fig. 19

NUCLEOTIDE SEQUENCE OF THE REPRESENTATIVE
BREAST-TUMOR SPECIFIC cDNA B4CA1

TC AGGAGCGGGT AGAGTGGCAC CATTGAGGGG ATATTCAAAA ATATTATTTT 60
TG ATAGTTGCTG AGTTTTTCTT TGACCCATGA GTTATATTGG AGTTTATTTT 120
CC AATCGCATGG ACATGTTAGA CTTATTTTCT GTTAATGATT NCTATTTTTA 180
GA TTTGAGAAAT TGGTTNTTAT TATATCAATT TTTGGTATTT GTTGAGTTTG 240
GC TTAGTATGTG ACCA 264

Fig. 20



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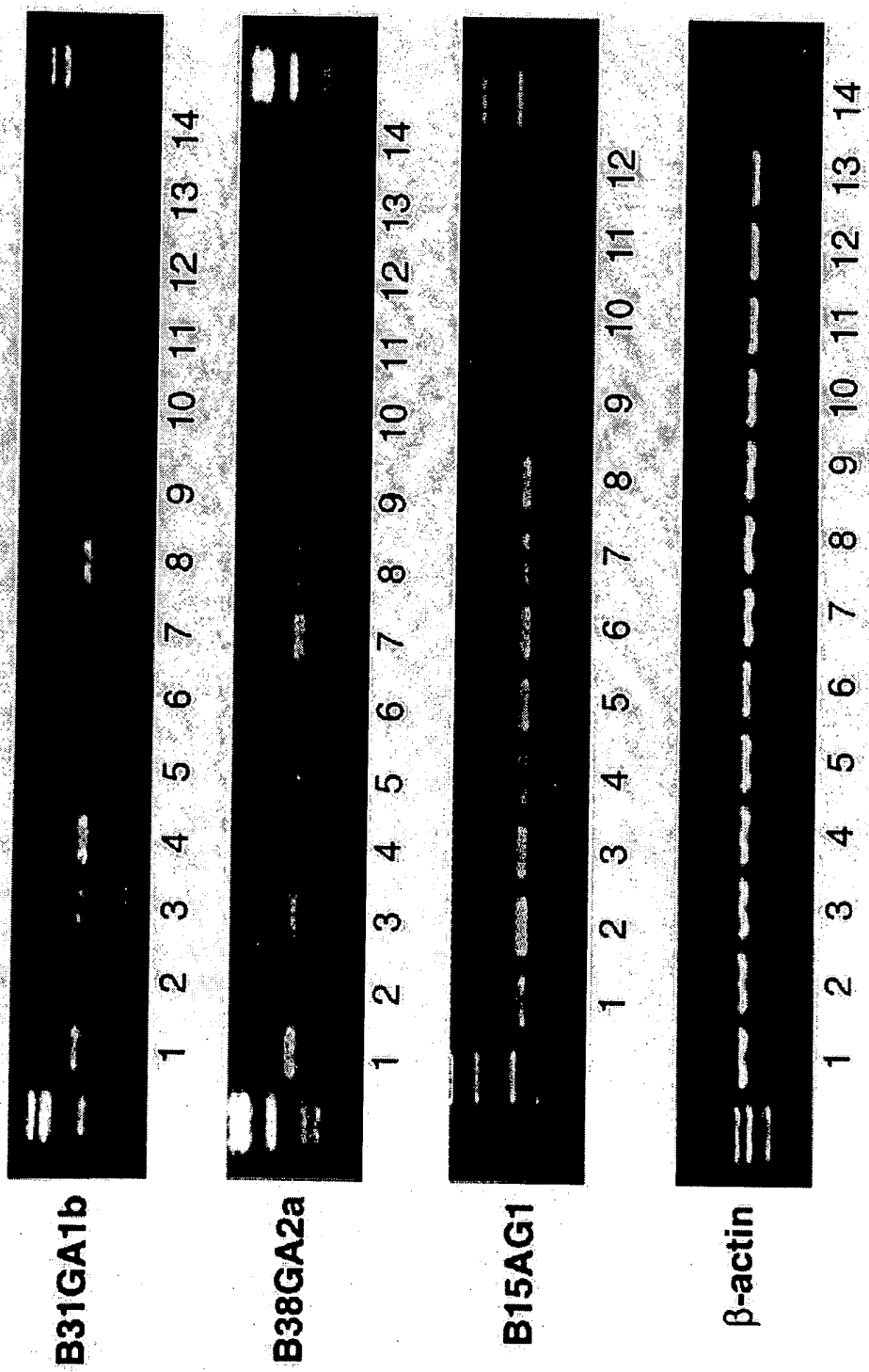


Fig. 21A

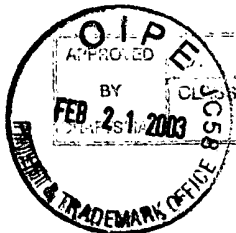


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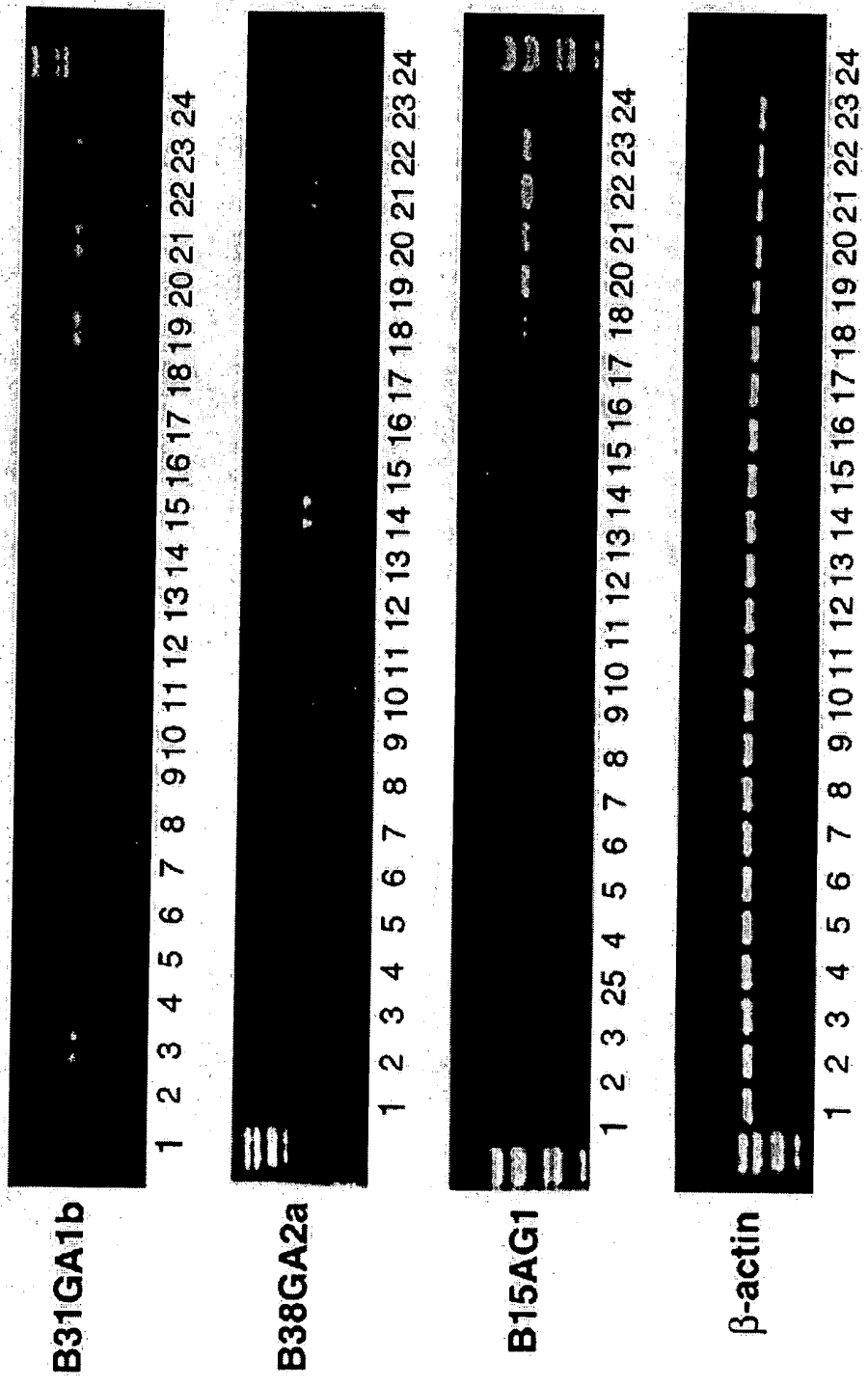


Fig. 21B



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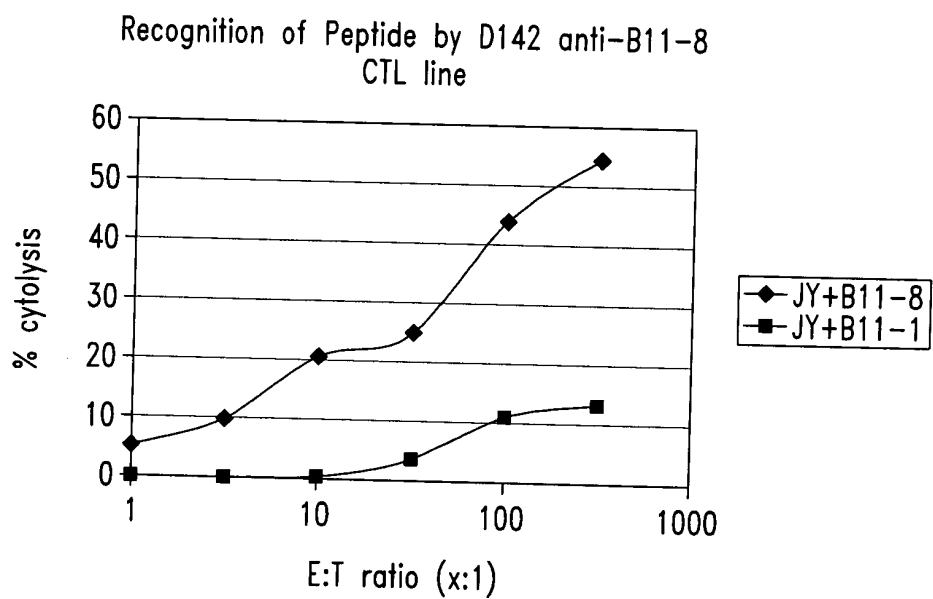
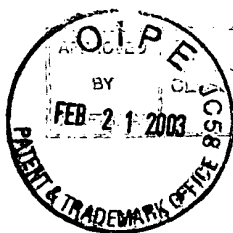


Fig. 22



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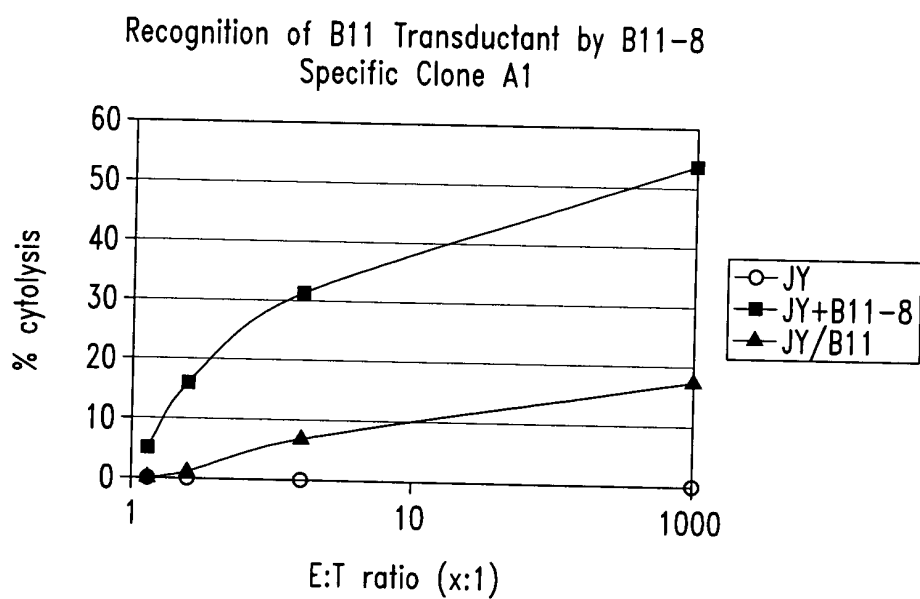


Fig. 23



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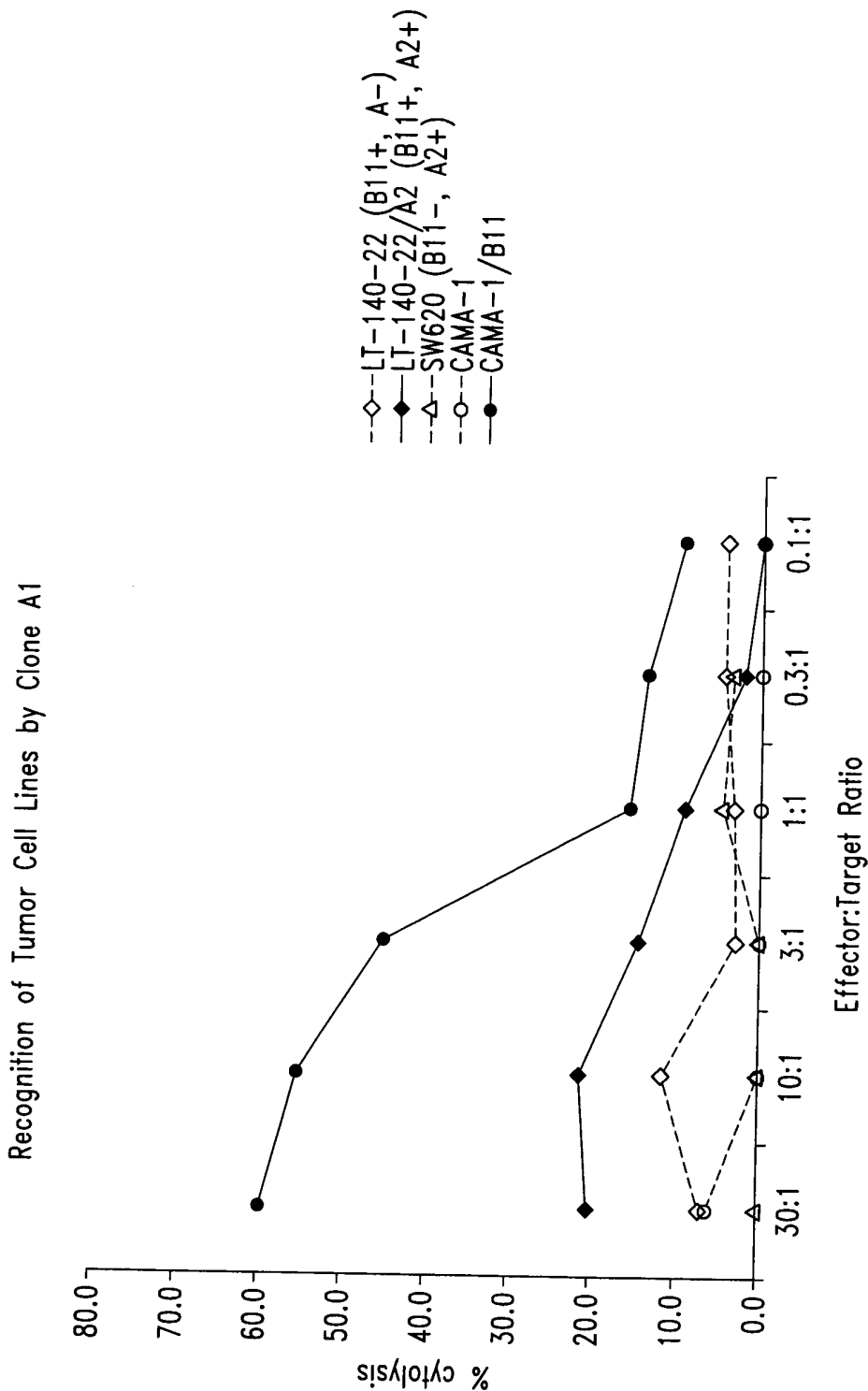


Fig. 24